- DOCUMENT RESUME

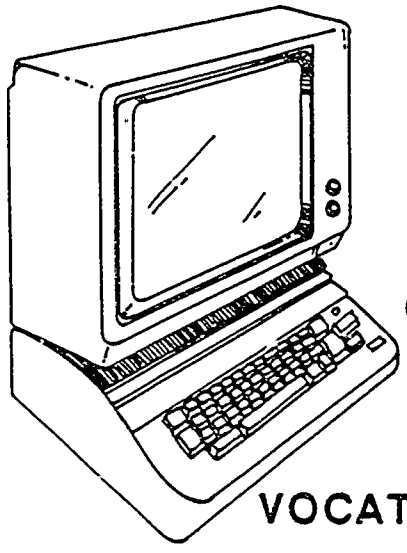
ED 300 677 CE 051 422

AUTHOR Gates, Earl; And Others
TITLE Ohm's Law and Solar Energy. Courseware Evaluation for Vocational and Technical Education.
INSTITUTION Ohio State Univ., Columbus. National Center for Research in Vocational Education.
SPONS AGENCY Office of Vocational and Adult Education (ED), Washington, DC.
PUB DATE 3 May 87
NOTE 9p.; For the basic evaluation form, see ED 244 058.
PUB TYPE Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Computer Software Reviews; *Courseware; *Electricity; High Schools; Instructional Material Evaluation; *Solar Energy; Trade and Industrial Education
IDENTIFIERS *Ohm Law of Electricity

ABSTRACT

This courseware evaluation rates the Ohm's Law and Solar Energy program developed by the Iowa Department of Public Instruction. (The program--not contained in this document--covers Ohm's law and resistance problems, passive solar energy, and project ideas and sources.) Part A describes the program in terms of subject area (construction and electronics) and hardware requirements (Apple II), indicates its suitability for use as tutorial in grades 9-12, and gives a time estimate (15-20 minutes). Availability information includes cost ($1.00 plus disk) and contact address. Part B contains the evaluation criteria in eight categories; reviewer ratings appear as yes, somewhat, no, and not applicable, with explanatory comments. Part C summarizes the evaluation. This program received a yes rating for subject matter; somewhat for technical presentation, student and program interaction, and documentation; and no for student evaluation. Reviewers noted that the Ohm's law and solar energy portions were good and the latter was useful in eighth-grade audit, but the project file was of little value to technology students. Overall, the program was recommended with reservations. (SK)



OHM'S LAW AND SOLAR ENERGY.

COURSEWARE EVALUATION

FOR

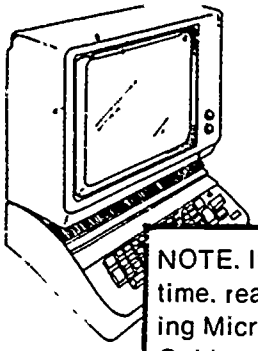
VOCATIONAL AND TECHNICAL EDUCATION

The evaluation of this courseware program was conducted by a team participating in the Courseware Evaluation Network. The Network, established in 1985, is coordinated by the National Center for Research in Vocational Education under the sponsorship of the U.S. Department of Education, Office of Vocational and Adult Education. The purpose of the Network is to identify and evaluate microcomputer courseware, and to disseminate courseware reviews for vocational and technical education.

Each Network team includes three members, at least one of which is, or recently has been, a vocational or technical teacher in the subject matter area of the courseware being evaluated. The evaluation represents a synthesis of the opinions of the team members. It is suggested that the evaluation be used as a first screening device for courseware and that the teacher also evaluate the courseware program on the basis of specific student needs.

The Courseware Evaluation: Form and Guide used for all of the Network evaluations was developed by the National Center and is available through its cost-recovery system.

THE NATIONAL CENTER
FOR RESEARCH IN VOCATIONAL EDUCATION
THE OHIO STATE UNIVERSITY
1960 KENNY ROAD · COLUMBUS, OHIO 43210



COURSEWARE EVALUATION FORM

NOTE. If you are using this form for the first time, read the instructions in the accompanying Microcomputer Courseware Evaluation Guide.

Evaluator Earl Gates; Richard Gifford; James Goldstine
Position
Date 5/3/87

Part A: Courseware Description

In the following sections, record descriptive information about the courseware that you are evaluating.

I. IDENTIFICATION

Program Title Ohm's Law and Solar Energy Date 1984

Series Title Iowa Industrial Education Programs, (Disk IV).

Vocational Area(s) Trade and Industrial Education

Subject Area(s) Construction and Electronics

Topic(s) Ohm's Law and Res.; Passive Solar; Project File

Developing Agency Iowa's Department of Public Instruction

Street or P.O. Box Grimes State Office Building

City Des Moines, State IA. Zip 50319 Phone(515) 281-3038

Author(s) J. McCoy; D. Moffitt

Programmer(s)

II. HARDWARE REQUIREMENTS

Microcomputer* Apple II Series
(brand/model)

K Memory Required 48K
(number)

Medium of Transfer (include number of each):

- ___ Tape cassette
- ___ ROM cartridge
- X 5¼" Flexible disk
- ___ 8" Flexible disk
- ___ Other ___ (specify)

Programming Language Apple Software DOS Specifications 3.3

Other Specifications

Peripherals Needed (check all that apply):

- ___ Color monitor
- X One disk drive
- ___ Two disk drives
- ___ Plotter
- ___ Game paddle(s)
- ___ Joystick(s)
- ___ Modem
- ___ Mouse
- ___ Printer
- ___ Graphics tablet
- ___ Light pen
- ___ Voice/sound instrument
- ___ Clock
- ___ Video disk
- ___ Touch screen
- ___ Ten-key number pad
- ___ Other ___ (specify)

*NOTE: Provide the above information for any additional hardware on which this program can be used.

III. PROGRAM FEATURES (check all that apply):

__ Network version provided
__ Multiple copies required
X Program can be modified
__ Program protected
__ Data disk needed
__ Field-test data available

IV. INSTRUCTIONAL SETTING

Program mode (check all that apply):

__ Application
__ Drill and practice
__ Educational gaming
__ Simulation
X Tutorial
__ Other _____ (specify)

Student Target Population (check all that apply):

X Regular
__ Disadvantaged
__ Handicapped
__ Limited English
__ Bilingual
__ Gifted

Grade Level (check all that apply):

__ K-6
__ 7-8
X 9-10
X 11-12
__ 13-14
__ Adult
__ Higher Education

Instructional Grouping (check all that apply):

X Individual
X Small group (up to 4)
__ Large group (4 or more)
__ competitive interaction
__ cooperative interaction

Prerequisite Student Skills (specify) Basic Math

Accompanying Materials (specify types):

Documentation One page Use/Instructions

Student support materials _____

Teacher support materials _____

Correlated materials _____

Estimated Time for Use 15-20 minutes per section

V. AVAILABILITY

__ Free _____ (copies)

__ Loan _____ (time)

__ Duplication (requestor supplies disk)

X Sale $ 1.00 + Disk

__ Rent $ _____ _____ (time)

Copyright Restrictions (explain) None, Public Domain.

Back-up Policy (explain) _____

Preview Policy (explain) _____

Update Policy (explain) _____

Contact Publications Section, Iowa State Department of Instruction

Street or P O Box Grimes State Office Building

City Des Moines, State IA. Zip 50319 Phone (515) 281-3038

Part B: Courseware Evaluation Criteria

Indicate the applicability of each section to the courseware being evaluated by checking either "___ A" (applicable) or "___ N/A" (not applicable). If a section is not applicable, proceed to the next section. If a section is applicable, check the column that indicates how well the courseware meets each criterion. Include any comments.

	YES	SOME-WHAT	NO	N/A	COMMENTS
I. SUBJECT MATTER X A ___ N/A					
1. Subject matter has educational value.	X				
2. Student objectives are stated.		X			
3. Subject matter is accurate.	X				
4. Subject matter is logically presented.	X				
5. Subject matter is free of race, ethnic, sex, and other stereotypes.	X				
6. Subject matter is on the level of the students.	X				
7. Information and skills presented are comparable to those used in the home, business, or industry.	X				
8. Subject matter motivates students to learn.		X			
9. Subject matter is reviewed and summarized.		X			
10. Program utilizes the unique capabilities of the microcomputer to present the subject matter.	X				
II. TECHNICAL PRESENTATION X A ___ N/A					
1. Program is free of technical problems.		X			
2. Presentation rate is adequate to maintain interest.	X				
3. Information on the screen is easy to read.	X				
4. Program is free of spelling and grammatical errors.	X				
5. Program instructions are easy to follow.	X				
6. Color increases the instructional value of the program.			X		
7. Audio increases the instructional value of the program			X		
8. Graphics increase the instructional value of the program.		X			

	YES	SOME-WHAT	NO	N/A	COMMENTS
III. STUDENT INTERACTION X A ___ N/A					
1. Students can use the program with minimal assistance.	X				
2. Students are actively involved in the program.		X			
3. Students control the pace of the program.	X				
4. Students can access the program "menu(s)" to change activities.	X				
5. Students are permitted to change answers.	X				
6. Methods of responding correspond to the level of the program.	X				
7. Students' errors of entry are processed so that the program continues to run.				X	
8. Students can access available "help" and "hint" options at any time.			X		
9. Students can enter or exit the program as desired.	X				
10. Students control the sequence of the program.	X				
IV. PROGRAM INTERACTION X A ___ N/A					
1. Feedback is immediate.	X				
2. Cues and prompts are provided to assist students in answering correctly.	X				
3. Feedback reinforces the correct responses.		X			
4. Feedback is nonthreatening.	X				
5. Program helps students understand wrong answers.		X			
6. Program gives the correct answer after a reasonable number of tries.	X				
7. Positive reinforcement is varied.		X			
8. Program has the ability to branch/loop depending upon students' performance.		X			
9. Feedback is on the level of the student.		X			
V. STUDENT EVALUATION ___ A X N/A					
1. Evaluation provides a means for measuring attainment of objectives.					
2. Program reports which items were missed and which were correct.					

	YES	SOME-WHAT	NO	N/A	COMMENTS
V STUDENT EVALUATION—*Continued*					
3 Individual student performance results are available to the teacher.					
4 Class performance results are available to the teacher					
5 Program provides for printed copies of evaluations.					
6. Test item formats are suited to the material being tested.					
7. Test items are clearly stated.					
8. Test item bank is provided.					
VI. DOCUMENTATION X A ___ N/A					
1. Documentation is easy to understand.	X				
2. Documentation is accurate.	X				
3. Student objectives are stated.		X			
4. Underlying concepts are outlined.			X		
5. Skills to be developed are specified.			X		
6. Procedures for integrating the program into the curriculum are provided.		X			
7. Follow-up activities are suggested.		X			
8. Documentation explains the intended use of support materials.			X		
9. Sufficient information is provided to operate the program.	X				
VII. WORK BEHAVIORS ___ A X N/A					
1. Program helps students identify their vocational skills.					
2. Program promotes pride in work.					
3. Program promotes productivity.					
4. Program encourages good work habits.					
5. Problem solving is encouraged.					
6. Program promotes good human relations skills.					
7. Program provides an opportunity for work satisfaction and self-fulfillment.					
8. Program encourages creativity.					

	YES	SOME-WHAT	NO	N/A	COMMENTS
VIII. APPLICATION PROGRAMS ___ A _X_ N/A (to be completed for application programs only)					
1. Program is adaptable to the needs of the student.					
2. Commands are easily remembered.					
3. Information is easily manipulated.					
4. Corrections are easy to make.					
5. Program includes all necessary variables.					
6. Program performs reliably.					
7. Program efficiently achieves its intended purpose.					
8. Trial data are supplied for learning to run the program.					
9. Program provides for use of printer when hard copy of information is advantageous.					
10. Program moves from operation to operation efficiently.					
11. Program is compatible with other application programs.					
12. Program has a supplementary tutorial program available.					

Part C: Courseware Evaluation Summary

1. SUMMARY COMMENTS

Identify strengths of the courseware:

Both OHM's Law and Solar Energy Portions Good.

Identify weaknesses of the courseware:

Project file of little value to technology students.

Describe uses of the courseware in an instructional setting:

Solar portion useful in 8th grade audit.

2. SUMMARY OF SECTION

Rate the quality of the courseware for each applicable section of this form by checking the appropriate column; if not applicable, check N/A.

	YES	SOME-WHAT	NO	N/A
I. SUBJECT MATTER: Content has educational value.	X			
II. TECHNICAL PRESENTATION: Program is free of malfunctions.		X		
III. STUDENT INTERACTION: Students are actively involved with the program.		X		
IV. PROGRAM INTERACTION: Feedback is effectively employed.		X		
V. STUDENT EVALUATION: Evaluation adequately measures student progress.			X	
VI. DOCUMENTATION: Documentation is sufficient to run the program.		X		
VII. WORK BEHAVIORS: Program assists students in developing positive work attitudes and skills.				X
VIII. APPLICATION PROGRAMS: Program performs the task for which it is intended.				X

3. FINAL RECOMMENDATION

Check your recommendation for the courseware and explain your reasons below.

___ Highly recommend
___ Recommend
_X_ Recommend with reservations
___ Do not recommend